

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Cancelled).
2. (Currently Amended) The method of claim [[1]]7, wherein receiving the carrier phase estimation information comprises receiving one or more points from a communications constellation.
3. (Original) The method of claim 2, wherein estimating the carrier phase comprises comparing a phase associated with the one or more points with a phase value that is expected assuming phase lock.
4. (Currently Amended) ~~The method of claim 3, A method comprising:~~
receiving carrier phase estimation information, wherein receiving the carrier phase estimation information comprises receiving one or more points from a communications constellation; and
estimating a carrier phase based on the carrier phase estimation information by comparing a property of the carrier phase estimation information with a value that is expected assuming phase lock,
wherein estimating the carrier phase comprises comparing a phase associated with the one or more points with a phase value that is expected assuming phase lock, and
wherein the phase comprises an average phase.

5. (Original) The method of claim 2, wherein estimating the carrier phase comprises comparing an amplitude associated with the one or more points with an amplitude value that is expected assuming phase lock.
6. (Currently Amended) ~~The method of claim 1, A method comprising:~~
receiving carrier phase estimation information, wherein receiving the carrier phase estimation information comprises receiving a sequence of a plurality of points from a communications constellation; and[[, and]]
estimating a carrier phase based on the carrier phase estimation information by comparing a property of the carrier phase estimation information with a value that is expected assuming phase lock, wherein estimating the carrier phase comprises comparing an average phase of the sequence with an average phase value that is expected assuming phase lock.
7. (Currently Amended) ~~The method of claim 1, further comprising: A method comprising:~~
receiving carrier phase estimation information;
estimating a carrier phase based on the carrier phase estimation information by comparing a property of the carrier phase estimation information with a value that is expected assuming phase lock, including:
determining a carrier phase correction factor based on the comparison of the property of the information with the value that is expected assuming phase lock;
determine a local phase; and
determining the carrier phase by applying the carrier phase correction factor to the local phase.

8. (Currently Amended) The method of claim [[1]]7, wherein the carrier phase estimation information comprises a start-up signal defined for an ITU-T Recommendation V.34 or later modem.
9. (Currently Amended) The method of claim 8, wherein the start-up signal comprises a start-up signal that is selected from the group consisting of S, S-bar, Sh, and Sh-bar as defined in at least one of ITU-T V.32, V.34, and V.90.
10. (Currently Amended) The method of claim 1, A method comprising:
receiving carrier phase estimation information;
estimating a carrier phase based on the carrier phase estimation information by comparing a
property of the carrier phase estimation information with a value that is expected assuming
phase lock; and
further comprising iterating through receiving additional carrier phase estimation information and re-estimating the carrier phase based on the additional carrier phase estimation information until a comparison indicates that the property of the received information is within a threshold of the value expected assuming phase lock.
11. (Currently Amended) The method of claim [[1]]10, further comprising using the estimated carrier phase to aid phase lock with a PLL.
12. (Cancelled)
13. (Currently Amended) The article of claim 12, An article comprising:
a storage medium having stored thereon data representing sequences of instructions that if
executed cause a component of a communication system to estimate a carrier phase based

on carrier phase estimation information by comparing a property of the carrier phase estimation information with a value that is expected assuming phase lock,

wherein the instructions to estimate the carrier phase further comprise instructions that if executed cause the component to:

determine a carrier phase correction factor based on the comparison of the property of the ~~demodulated~~ carrier phase estimation information with the value that is expected assuming phase lock; and

estimate the carrier phase by applying the carrier phase correction factor to a local phase.

14. (Currently Amended) The article of claim [[12]]13, wherein the instructions to estimate the carrier phase further comprise instructions that if executed cause the component to compare a phase associated with the carrier phase estimation information with a phase value that is expected assuming phase lock.
15. (Currently Amended) The article of claim [[12]]13, wherein the instructions to estimate the carrier phase further comprise instructions that if executed cause the component to compare an amplitude associated with the carrier phase estimation information with an amplitude value that is expected assuming phase lock.
16. (Currently Amended) The article of claim [[12]]13, wherein the carrier phase estimation information comprises one or more points from a communications constellation.
17. (Currently Amended) The article of claim [[12]]13, wherein the carrier phase estimation information comprises a start-up signal defined for an ITU-T Recommendation V.34 or later modem.
18. (Currently Amended) The article of claim [[12]]13, implemented in a computer system ~~comprising, wherein the storage medium comprises~~ a DRAM memory.

19. (Currently Amended) The article of claim [[12]] 13, implemented in a portable radio communication device ~~comprising, wherein the storage medium comprises~~ a Flash memory.

20. (Original) An apparatus comprising:

a correction factor determination system to determine a carrier phase correction factor by comparing a property of carrier phase estimation information with a value that is expected assuming phase lock;

a phase generator to generate a phase; and

a phase combiner coupled with the correction factor determination system to receive the carrier phase correction factor, and coupled with the phase generator to receive the phase, the phase combiner to estimate a carrier phase by combining the carrier phase correction factor with the phase.

21. (Original) The apparatus of claim 20, wherein the correction factor determination system comprises a correction factor determination system to compare a phase associated with the carrier phase estimation information with a phase value that is expected assuming phase lock.

22. (Original) The apparatus of claim 20, wherein the correction factor determination system comprises a correction factor determination system to compare an amplitude associated with the carrier phase estimation information with an amplitude value that is expected assuming phase lock.

23. (Original) The apparatus of claim 20, wherein the carrier phase estimation information comprises a sequence of points from a communications constellation, and wherein the correction factor determination system comprises a correction factor determination system

to compare an average phase of the sequence with an average phase value that is expected assuming phase lock.

24. (Original) The apparatus of claim 20, wherein the phase combiner is coupled with a PLL to provide the estimated carrier phase to the PLL.

25. (Original) The apparatus of claim 20, implemented in a computer system comprising a DRAM memory.

26. (Original) The apparatus of claim 20, implemented in a portable radio communication device comprising a Flash memory.

27. (Currently Amended) An apparatus comprising:

 a Flash memory to store information;

 a communication device to receive information from a communication system; and

 a carrier phase estimation system to estimate a carrier phase, the carrier phase estimation system including:

 a correction factor determination system to determine a carrier phase correction factor by comparing a property of carrier phase estimation information with a value that is expected assuming phase lock;

 a phase generator to generate a phase; and

 a phase combiner coupled with the correction factor determination system to receive the carrier phase correction factor, and coupled with the phase generator to receive the phase, the phase combiner to estimate [[a]] the carrier phase by combining the carrier phase correction factor with the phase.

28. (Original) The apparatus of claim 27, wherein the carrier phase estimation information comprises a sequence of points from a communications constellation, and wherein the correction factor determination system comprises a correction factor determination system to compare a property selected from the group consisting of a phase and an amplitude with a corresponding phase or amplitude value that is expected assuming phase lock.
29. (Original) The apparatus of claim 27, wherein the property and the value comprise an average property and an average value.
30. (Original) The apparatus of claim 27, further comprising:
 - a bus to communicate information; and
 - a processor coupled with the bus to process information.